Dialect and Watershed Distributions in Shaanxi Province and the Jiang-Huai Area in China

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Abstract
Inspired by several dialect geography studies, the present study aimed to determine whether there is a connection between geographical features and dialect distributions, with a specific focus on whether the distribution of watersheds in certain Chinese localities corresponds with the regional distribution of dialects. Three criteria were used to search for the desired targets within China: (1) dialectal diversity, (2) geographical diversity, and (3) the availability of geographic and linguistic data. Shaanxi province and the Jiang-Huai region of China were selected for this purpose. Using a map-to-map comparison and a literature review, similar overlapping patterns were found between the watershed and dialect boundaries in the two areas. These preliminary findings indicate a correlation between watershed distribution and dialectal boundary formation in these localities.

Key words
Dialect, watershed, Shaanxi, Jiang-Huai area, China, geography

1. Introduction

The term "dialect" (方言) and its literal meaning, "regional speech," suggest that there is an internal, natural, and close bond between dialects and geography (Kurpaska 2010:1). This symbiotic relationship has been noticed and discussed by various scholars. For example, Garr (2004:3) argued that dialect geography can provide an "aerial view" of linguistic differentiation by plotting dialectally significant linguistic features on a map. Simmons et al. (2006) investigated the boundary between the Wu and Jiang-Huai Mandarin dialects and outlined the common southern Jiang-Huai phonological system. Zhang and Zhuang (2008) demonstrated that both natural and historical geography play essential roles in the distribution of the Hakka, Yue, and Min dialects in Guangdong province. Li and Xu (1996:63) noted that the seven major dialect regions of Fujian province have high levels of correlation with the seven water basins within the same territory. Chamberlain (2015) studied the watershed distribution in the Tibetan region and concluded that the watersheds are closely correlated with known linguistic groupings, which suggests that the delineation of local language variations is actually possible within the harsh environment and formidable physical obstacles of the Tibetan region.

2. Literature review of Chinese dialect geography

Many researchers have contributed to the knowledge of the connection between dialects and geography throughout the history of Chinese dialect studies. For example, 20th-century Chinese thinker, philologist, and textual critic Zhang Taiyan 章太炎 (1869–1936) was the first scholar to develop a classification system for Chinese dialects based mainly on China's administrative boundaries of the time (Lu 2019:25). In his classification, Zhang Taiyan also discussed the relationship between dialect boundaries and geographical objects, such as rivers (*he zhi shuo* 河之朔; literally, "north of the Yellow River"), seas (*dong chuan hai* 东传海; "east to the sea"), mountains (*ji yu bei sai* 暨于北塞; "up to the north forts"), and human migration (*yong jin song chang xi du gu* 用晋、宋尝徙都故; "the Jin and Song dynasties tried to relocate their capitals") (Lu 25). The Chinese linguist and educator Li Jinxi 黎锦熙 (1890–1978) classified Chinese dialects into 13 basic types, which were based exclusively on the names of river systems or major bodies of water in China (Wang Futang 2005:53-54, qtd in Lu 2019:27). American sinologist and linguist Jerry Norman (1988:4) also believed that the origin of the Chinese language was centered on the Yellow River Plain.

Other than the aforementioned research, two recent geographical–dialectal research works in particular are worthy of discussion. The book *Comparative Study of the Dialects Along the Yellow River in Shaanxi and Shanxi Provinces* (*Qin Jin Liang Sheng Yan He Fangyan Bijiao Yanjiu* 秦晋两省沿河方言比较研究), authored by Zhang Weijia 张维佳et al. (2012), was the first book to systematically examine the conditions and histories of the vocabulary, grammar, and phonetics of the local dialects at 28 different sites along the Yellow River in Shaanxi and Shanxi provinces. This book was publicly acclaimed for its originality and completeness. The second book, *The Relationship Between the Distribution Pattern of Chinese Dialects and Physical Geography and Human Geography* (*Hanyu Fangyan Fenbu Geju yu Ziran Dili Renwen Dili de Guanxi* 汉语方言分布格局与自然地理、人文地理的关系) was authored by Lu Jianping 吕俭平 (2019). It provides a bird's-eye view and comprehensive description of Chinese dialects and their diachronic and synchronic relationship with Chinese human geography 人文地理 (*ren wen di li*). These two books contain many interesting and useful statistics, observations, and details about the relationship between dialect and geography in China.

Watershed 分水岭 (*fen shui ling*) is an important term in geography, demography, and cultural studies. According to the encyclopedic entry of the *National Geographic* website (2020), a watershed is "an area of land that drains or 'sheds' water into a specific waterbody." Inspired by the previously mentioned studies, the current research aimed to determine whether there is a connection between geographical features and dialect distributions and, specifically, whether the distribution of watersheds in certain Chinese localities corresponds with the regional distribution of dialects. To locate a suitable target region, three parameters were used: (1) dialectal diversity, (2) geographical diversity, and (3) the availability of geographic and linguistic data. The Shaanxi province and the Jiang-Huai region of China were selected for this study.

3. Geographical and dialectal features of Shaanxi province and the Jiang-Huai area

3.1 Shaanxi province

Shaanxi province 陕西省(*shan xi sheng*) is a landlocked province in northern central China that borders eight other provinces, including Inner Mongolia, Henan, Hubei, Shanxi, Sichuan, Gansu, Chongqing municipal, and the Hui Autonomous Region of Ningxia. Its area is about 75,600 square miles (195,800 square kilometers), and the total population was 37,327,378 in 2010 (Falkenheim and Twitchett 2019). Shaanxi is one of the original sites of the Chinese people and civilizations and is a geographically important region for understanding China's cultural heritage and rich history.

The basic geographical profile of Shaanxi comprises distinct natural regions: the mountainous southern region, the Wei River valley, and the northern upland plateau (Falkenheim and Twitchett 2019). The southern part of Shaanxi features the famous Qin Mountains 秦岭 (*qin ling*). It is an eastern extension of the Kunlun Mountains 昆仑山 (*kun lun shan*) and extends east–west from Gansu province into southern Shaanxi province and Henan province. It constitutes a major watershed between the Wei River 渭河 (*wei he*), which is a tributary of the Yellow River and Han River 汉江 (*han jiang*), itself a tributary of the Yangtze River (长江) to the south (*Encyclopedia Britannica* 2020, "Han River") and the largest river in the province. When connected on a map with the Huai River 淮河 (*huai he*), the Qinling–Huaihe Line 秦岭-淮河线 (*qingling huaihe xian*) represents the most important marker dividing China into north and south. It also defines the drainage basins of the Yangtze and Yellow River systems and provides a natural boundary between the two areas.

The second major region, the Weihe River 渭河 (*wei he*) valley, is a major geological trough and is bounded on the south by a vast complex of faults and fractures along the base of the Qin Mountains (Falkenheim and Twitchett 2019). The Weihe River valley was also the earliest center of Chinese civilization and the site of a succession of capital cities until the 10th century AD (*Encyclopedia Britannica* 2020, "Wei River").

The third region, to the north, is the great upland plateau of northern Shaanxi. It is part of the world's largest plateau, the Loess Plateau (*huang tu gao yuan* 黄土高原), which is subject to heavy erosion due to its sparse vegetation, heavy precipitation in summer, and gullying (*Encyclopedia Britannica* 2020, "Loess Plateau"). On its east side, the Yellow River constitutes a natural border between Shaanxi and Shanxi provinces (*Encyclopedia Britannica* 2020, "Wei River").

A detailed map of the three regions is presented in Figure 1.

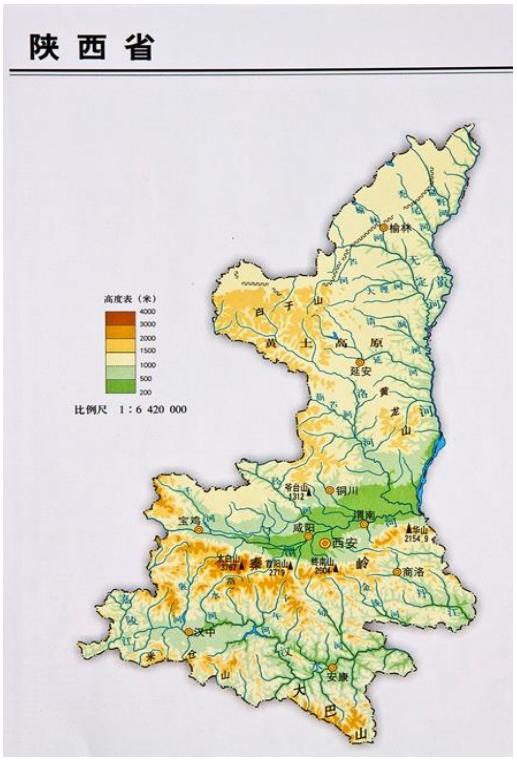

Figure 1: A topographic map of Shaanxi province
(Source: Wen 2016)

The dialect distribution in Shaanxi province comprises a complicated dialectal ecosystem. In general, the three geographical regions mentioned above can be seen as roughly corresponding with the dialect distribution patterns in the province. According to the *Language Atlas of China, 2nd Edition* (Institute of Linguistics, Chinese Academy of Social Sciences [ILCASS] et al. 2012), these dialects can be classified into three categories:

(1) the Jin dialect group (*jin yu* 晋语) and its subgroups: Wutai (*wu tai pian* 五台片), Dabao (*da bao pian* 大包片), Luliang (*lu liang pian* 吕梁片), and Zhiyan (*zhi yan pian* 志延片). This area covers 19 cities and counties with about 4.37 million speakers (ILCASS et al. 2012: Map B1–13).

(2) the Central Plains Mandarin group (*zhong yuan guan hua* 中原官话) and its subgroups: Qinlong (*qin long pian* 秦陇片), Fenhe (*fen he pian* 汾河片), and Guanzhong (*guan zhong pian* 关中片). This area covers 67 cities and counties with about 28.08 million speakers (ILCASS et al. 2012: Map B1–6).

(3) the Southwestern Mandarin group (*xi nan guan hua* 西南官话) and its subgroups: the Chuanqian (*chuan qian pian* 川黔片) subgroup–Southern Shaanxi (*shan nan xiao pian* 陕南小片) cluster and the Huguang (*hu guang pian* 湖广片) subgroup–Ebei (*e bei xiao pian* 鄂北小片) cluster. This area covers two cities and counties with about 2.35 million speakers (ILCASS et al. 2012:Map B1–11; Lu 2019:166).

A detailed map of the three regions is shown in Figure 2.

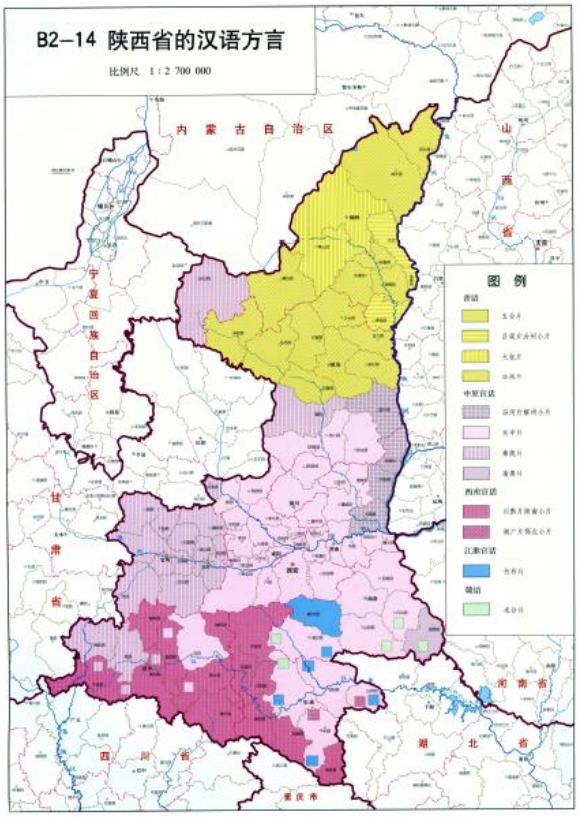

Figure 2: Distribution of the major dialect groups of Shaanxi province
(Source: ILCASS et al. 2012:Map B2–14)

In addition to these three main categories, various other dialects are distributed across Shaanxi province. For example, other than the Jin, Central Plains Mandarin, and Southwestern Mandarin groups, speakers of the Gan dialect 贛语 (*gan yu*) can be found in several dialect islands scattered in the mountain areas of Shangluo 商洛 (*shang luo*) and Ankang 安康 (*an kang*) in eastern Shaanxi province (Guo 2018:abstract) with an estimated population of 320,000 speakers covering five cities and counties (Lu 2019:166).

Similarly, in certain habitats in southern Shaanxi, such as Ankang, there are a few dialect islands in which the Xiang dialect 湘语 (*xiang yu*) can be found (Lu 2019:125); however, the number of speakers is estimated to be no more than 40,000, and they are scattered among dialect islands in the mountainous areas.

3.2 Jiang-Huai area

The Jiang-Huai area 江淮地区 (*jiang huai di qu*) refers to the plain between the Yangtze and Huai rivers. The Jiang-Huai area covers 243,300 square kilometers (Varis, Lehr, and Shen 2014:105, qtd in Wang 2020:5), has a population of 164.4 million, and is known as a dialect aggregation for its abundance of early Chinese language varieties and local dialects (Coblin 2002:540). The most common variety, Lower Yangtze Mandarin 下江官话 (*xia jiang guan hua*), also known as Jiang-Huai Mandarin 江淮官话 (*jiang huai guan hua*), has wide coverage

spanning from central Anhui to eastern Hubei, most of Jiangsu north of the Yangtze River, and the area around Nanjing. In 1987, the number of speakers was estimated to be 67 million (Yan 2006:64), but this number had increased to more than 86 million by 2012 (ILCASS et al. 2012:75). It is widely acknowledged that the Jiang-Huai area has played an important role in the history of China due to its unique geographical features and concentration of natural resources (Wang 2020:5). Throughout history, frequent migrations have added to the complexity of the dialects in this region.

4. Map comparison

Through a direct comparison of the *Language Atlas of China* and Chinese river basin distribution maps (Berman 2011) via manual contour matching, boundary comparisons, and opaqueness adjustments using Microsoft PowerPoint (Redmont, WA) as a platform, an overlapping pattern of geographical markers and dialectal group boundaries was observed.

Figure 3 illustrates a relatively high level of overlap between the borders of the Yangtze River Basin (pink color) and the Hong Chao dialect subgroup region (green color) in the Jiang-Huai area. A geographic demarcation line largely follows the patterns of the Hua River 淮河 (*huai he*) from the west–east direction. It connects the cities of Huai An 淮安 (*huai an*), Beng Bo 蚌埠 (*beng bu*), and Lu An 六安 (*lu an*) (red circles) and delineates the watershed between the Huai River and the Yangtze River Basin. It also largely coincides with the boundaries between the Central Plains Mandarin group and the Jiang-Huai Mandarin group (Berman 2011; ILCASS et al. 2012:Map B1–9).

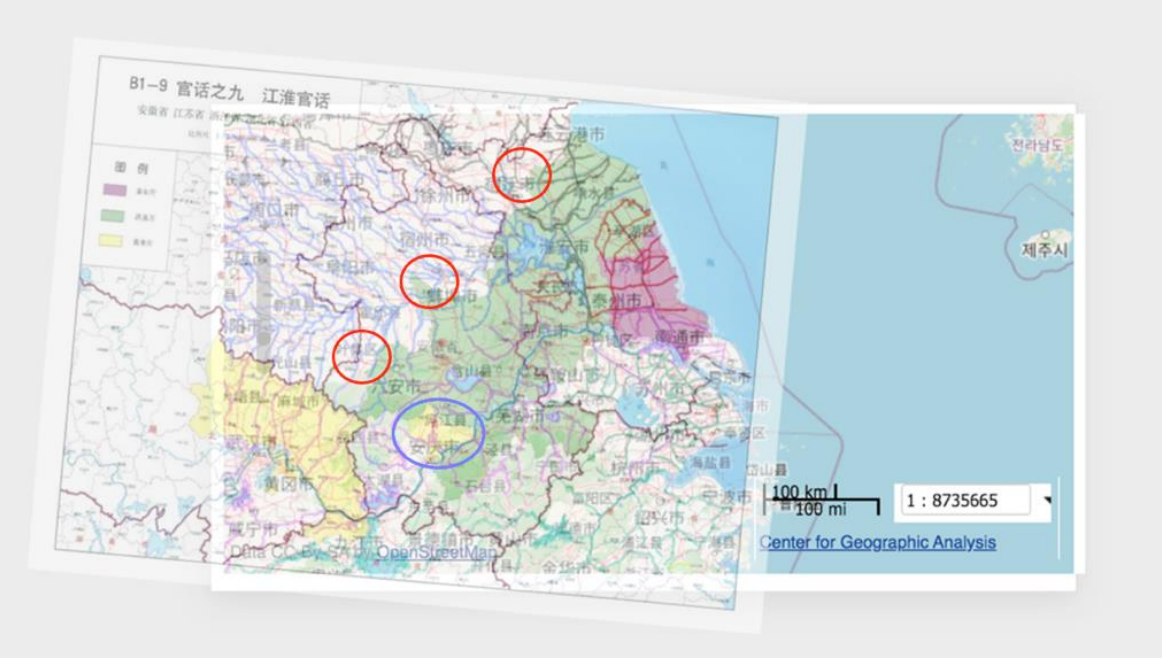

Figure 3: Overlaid maps of the dialect boundaries and watersheds in the Jiang-Huai area (Source: Berman 2011; ILCASS et al. 2012:Map B1–9).

An overlapping pattern was also observed between the geographical markers and dialectal group boundaries in Shaanxi province. For example, as shown in Figure 4, in the northern area of

the province, the contour of the Jin dialect group overlaps with the contour of the water drainage basin of the Luo River 洛河 (*luo he*). In the southern area, the contour between the Central Plains Mandarin group and the Southwestern Mandarin group generally fits with the west–east direction of the Qin Ling Mountains as the geographical demarcation of north and south China. The contour between the Qinlong dialect subgroup and the Chuanqian dialect subgroup]is aligned with the watershed borderline between the Jialing River 嘉陵江 (*jialing jiang*) and the Han River (ILCASS et al. 2012:Map B1–6, B1–11, B1–13; OCLGIMGCSP 2011:53).

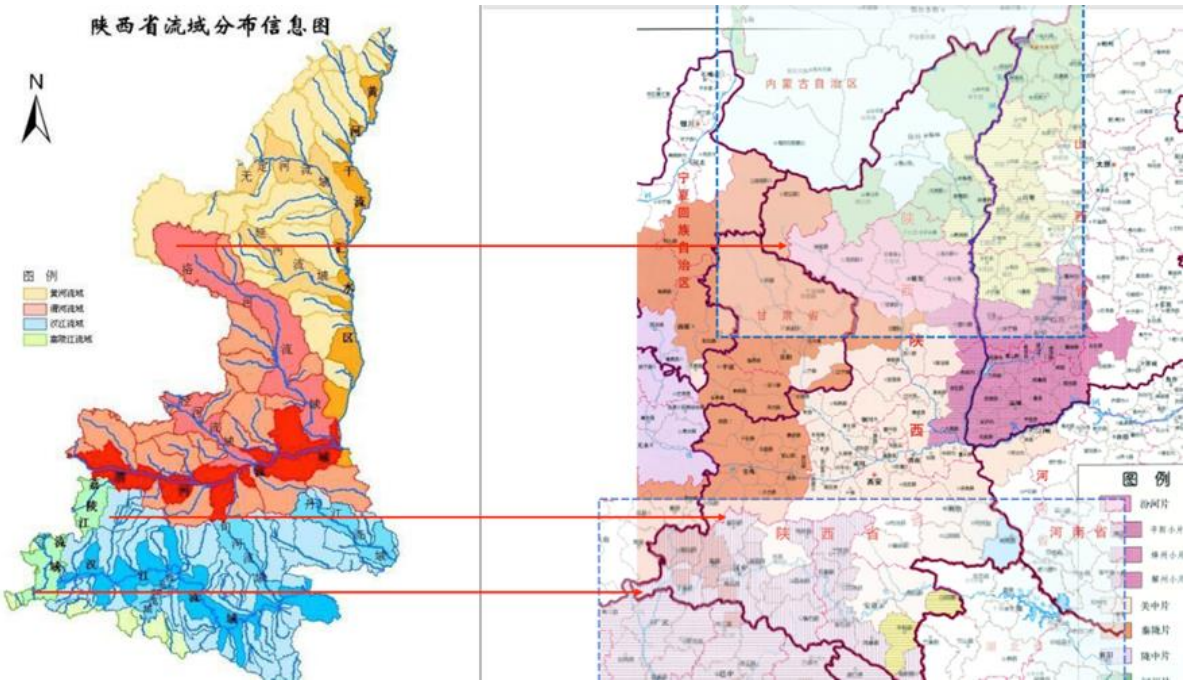

Figure 4: A head-to-head comparison of the major watersheds and distributions of the major dialect groups of Shaanxi province
(Source: ILCASS et al. 2012:Map B1–6, B1–11, B1–13; OCLGIMGCSP 2011:53).

5. Discussion

The preliminary findings of this study validate Li and Xu (2019) and Lu's (2019) arguments that mountains can act as natural barriers to dialect distribution. For example, the yellow area in Figure 3 around An Qing 安庆 (*an qing*) (circled in blue) intersects with the distribution of the Dabie Mountains 大别山 (*da bie shan*) on the boundary of Hubei, Huanan, and Anhui provinces. This area also largely overlaps with the Huang Xiao dialect subgroup. This pattern also fits with Lu's (2019:142) observation that mountains often naturally demarcate the boundaries of dialects. For example, Mufu Mountain 幕阜 (*mu fu*), Luoxiao Mountain 罗霄 (*luo xiao*), the Nanling Mountains 南岭 (*nan ling*), and the Wuyi Mountains 武夷 (*wu yi*) are considered important boundaries between the Mandarin, Gan, Xiang, and Hakka dialect groups.

The findings of this study also partly substantiate Lu's (2019:24, 56) argument that rivers function more to facilitate dialect diffusion than to isolate dialects because, along the rivers, the

contours of the dialect groups and subgroups do not strictly end with a river's drainage basin border. For example, the same dialects are often spoken on both sides of the river. To illustrate, the cities in northern Shaanxi, such as Fugu 府谷 (*fu gu*), Shenmu 神木 (*shen mu*), and Suide 绥德 (*sui de*), and those across the river in Shanxi province, such as Xinshou 忻州 (*xin zhou*) and Hequ 河曲 (*he qu*), all belong to the Wutai subgroup of the Jin dialect group. One of the possible reasons is that many ferries were built along the Yellow River, and communication across the river cannot be entirely prevented by nature (Lu 2019:59). A map showing the major ferries along the Yellow River is shown for reference (Figure 5).

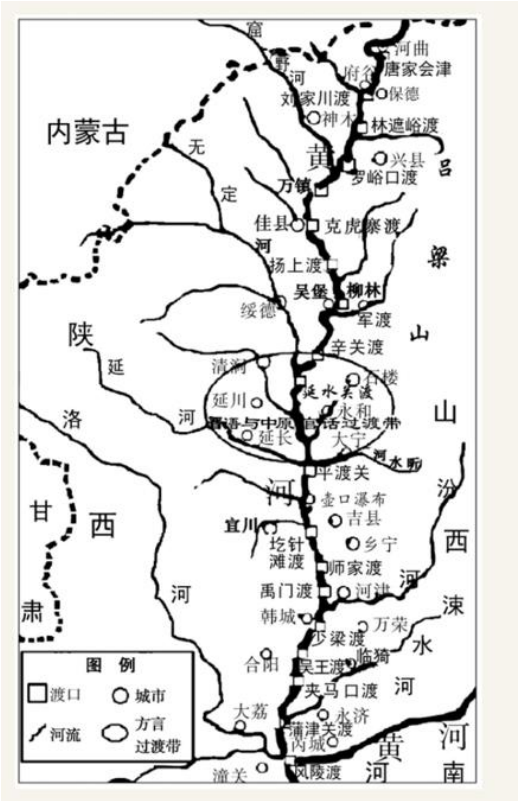

Figure 5: Major ferries of the Yellow River in Shaanxi province
(Source: Lu 2019:60)

6. Conclusion

The study of dialects from a geographical perspective is a relatively new practice, but to a certain degree, it connects the deep and natural connections between dialects and geography, providing researchers with a new perspective in the development and understanding of both domains. The present findings generally support Chamberlain's (2015) conclusion that linguistic groups fall along geographic lines and the view that watersheds are a major factor in delineating micro- and macro-level language variations. Due to the scope and technological limitations of map comparison tools, this study only partially examined the localities of Shaanxi province, with a comparison of the Jiang-Huai area. Future studies in this area with the aid of more advanced map comparison tools may yield valuable results that deepen our understanding of dialect typology.

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